Description of a new Marine Spider from S. Africa, collected by the Rev. N. Abraham, and presented to the Derby Museum.

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The following description of, what appears to be, a new species of spider, is based upon an adult female example which, together with some immature specimens, was presented to the Derby Museum by the Reverend N. Abraham, who collected them at Wynberg, S. Africa.

The existence of marine spiders, living in rocks on the shore, is no new discovery. Several have been described from various parts of the Eastern and Australian seas, and one of the same group, as mentioned below, was recorded not long since from S. Africa. No account, however, was given of the habitat of this spider, so it may be fairly claimed that the species forming the subject of the present paper, is the first spider certainly known to be marine, that has been recorded from Africa.

The distribution of the family *Desidæ*, which has been established for these marine spiders, is exceedingly interesting, inasmuch as the restriction of the genera, so far as is at present known, to the seas of S. Africa and of Australia and Eastern Asia, furnishes another instance of similarity between the fauna of the Australian and Ethiopian Regions, and supplies another item of evidence in favour of a former land connection between the two countries.†

Paradesis, *gen. nov.*

This new genus, and the allied form *Desis*, which ranges from Singapore to New Zealand, may be recognised by the following tables :—

a. Four eyes of posterior row sub-equally spaced, distance between posterior median eyes at least as great as distance between the anterior lateral and anterior median on each side.

Desis, *Walck.*

b. Four eyes of posterior row unequally spaced, space between the medians only a little more than half the space between the median and lateral on each side; space between posterior medians much less than space between median and lateral of anterior row.

Paradesis, *gen nov.*

Paradesis tubicola, *sp. n.*

Colour.—Cephalothorax and mandible chestnut red ; cephalic region of the carapace darker than the postero-lateral portions; legs and abdomen greyish brown.

Carapace covered with a clothing of fine erect hairs, a little narrowed in front ; width of head about two-thirds the length of the whole plate ; ocular area apparently about six times as wide as long ; space between anterior median eyes less than their diameter ; space between posterior medians about three diameters.

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* The Director begs to thank Mr. Pocock for so kindly complying with his request to describe these specimens.

† For further evidence supporting this connection *cf.* "The Chatham Islands : their Relation to a Former Southern Continent." By Henry O. Forbes. Supplementary Papers, R.G.S. III, 1893.

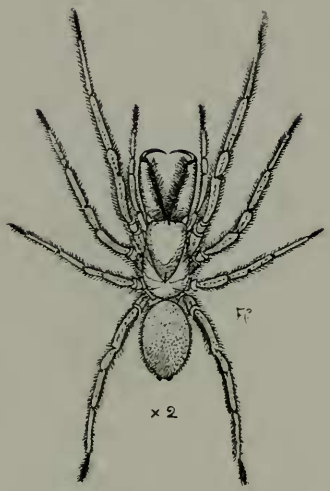

FIG. 1—*Paradesis tubicola*. ♀. TWICE NAT. SIZE.

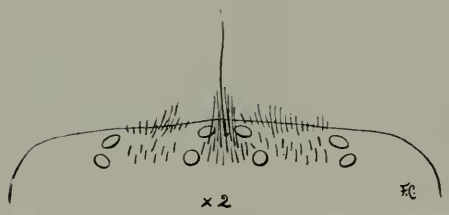

FIG. 2—*Paradesis tubicola*. FRONT OF HEAD, SHOWING ARRANGEMENT OF EYES.

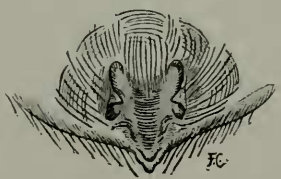

FIG. 3—*Paradesis tubicola*. VIEW OF VULVA.

Mandible nearly naked above ; basal segment a little less than length of carapace, armed below with two teeth behind and six farther back, in front ; fangs not sinuate, the inner edge finely serrulate.

Legs.—First, much the longest, more than three times the length of the carapace ; fourth, a little longer than second ; third, shortest ; all covered with a clothing of fine erect, or obliquely upstanding hairs, intermixed with which, especially towards the extremities of the legs, are some curiously hooked hairs ; at the ends of the protarsi of the second, third, and fourth, the hairs form a thickish dark coloured cluster.

Abdomen and ventral surface of cephalothorax covered with a thick coating of fine upstanding hairs.

Vulva consists of a plate which ends behind, in a triangularly pointed process ; in front, it is deeply excavated, the excavation being surmounted anteriorly by a conspicuous arch, from each side of which a stout, though short, process projects inwards over the hollow.

Measurements in millimetres.—Total length of body, 11 ; length of carapace, 5·3 : width of head, 3·3 ; length of basal segment of mandible, 5 ; length of first leg 19, of second 14, of third 12, and of fourth 15·5.

Locality.—Wynberg, S. Africa, in the interstices of the masses of *Tubicola*, within tide mark.

One other species apparently referable to this genus has been recorded from S. Africa. This was described by Mr. O. P.-Cambridge as *Robsonia** *formidabilis* (P.Z.S. 1890, p. 625, pl. liii, fig. 5). Nothing was recorded of its habits. No doubt, however, as Mr. Cambridge suggested, the species will prove to be marine. *P. formidabilis* and *P. tubicola* may be separated, according to the description of the former† by the following features :—

a. Legs entirely destitute of spines (according to Cambridge).
formidabilis, *Cambr.*

b. First leg unspined ; second, third, and fourth with three strong spines at the extremity of the protarsi beneath ; tarsi of third and fourth with about half-a-dozen spines, arranged somewhat irregularly in pairs ; tibiæ of third and fourth, with an inferior apical pair of long slender spines.
tubicola, *sp. n.*

Mr. Abraham has communicated, in a letter to the Director of Museums, the following interesting account of this spider :—"About a year ago, or more, an old friend of mine, Dr. Becker, was paying me a visit, and we went to the seaside to collect sea-weeds. While on the shore my friend asked me if I had ever found spiders living in the sea. I had not. He then asked me to keep a look-out in the tubes of *Tubicola*. I soon found a mass of these structures, and, breaking off a large piece, I brought it out of the sea. We then began to break up the mass of tubes, and soon found two spiders, which were what my friend called, sea-spiders. Now, since that time, I have made a study of these spiders, and have kept them in my marine aquarium, and have become familiar with them. I must now, in brief, tell you one or two things of interest. First, the spiders can always be found in the tube masses of *Tubicola*. This formation is invariably covered by the sea at high tide, and

* In the Ann. Mag. Nat. Hist. (6) xvi, p. 143, 1895, I pointed out that the name *Robsonia*, Cambr., is synonymous with the much earlier *Dandridgea*, White, and that the latter is, in all probability, synonymous with *Desis*, as I here consider it to be.

† In the following sentence published by Mr. Cambridge (loc. cit. p. 626), "in the present species [*formidabilis*] the interval between the central pair [of eyes of the posterior row] is nearly, if not quite, double that between each and the lateral eye next to it," the word *double* is an obvious slip for *half*.

much of it even at low tide. I have often gone into the breakers, and have nearly been carried away by the strength of the sea, but with a hammer and a bar of iron have broken off, from under the sea, portions of the formation; and then, going on shore, have found spiders, in their homes, in the mass, when I had broken it to pieces. Sometimes I have found five or six spiders, in one piece of material weighing five or six pounds.

"Now, what is curious is, that these spiders cannot swim or dive, and when placed on the surface of the water appear to be quite helpless, or nearly so. I have never seen one make any attempt to navigate itself through water. . . . For a long time I could not get a good specimen of their dwellings; but, with the assistance of a friend, I eventually succeeded in securing several nearly perfect examples. I then saw that the spider did not, as a rule, make its home in the empty tubes of the worms, but that it spun it in one of the many spaces left between the tubes. There is nothing very striking about their silken structures. As you break up a mass of tubes, you suddenly come across a fine and delicate piece of silk. On examining this you find it to be a chamber with an opening sea-ward. It is so frail and delicate that it is very difficult to get a complete specimen, and the least rough handling and it is gone. Yet in this frail house of silk, hidden away in some little space in the mass of tubes built by marine worms, this spider lives and thrives, and propagates its species, the waves breaking over it all day long. It cannot swim, as I have said; it is soft and delicate, and, as I have proved, does not long survive being kept in a dry box away from the sea. I have never, but on one occasion, found one of these spiders apart from the *Tubicola*-masses. I have watched the tubes, when the tide was low, in the hope of seeing a spider crawling or running about, but I have never yet seen one. They live out of sight deep down among the worm tubes. How they catch their food, what their food is, and how they keep the sea from drowning them, are questions I have not yet demonstrated, though I have tried, again and again, to keep them in my marine aquaria. Shortly after introducing one, I have often found it floating helplessly on the water, apparently half dead, and I have had it lifted out of the water and placed on the rock-work, when it soon became active, and ran about very quickly, when it appeared to be just like an ordinary spider. I have not had time yet to make an anatomical study of it, but I thought I had better not defer sending you a specimen, so that you may be, perhaps, the first to receive specimens of the wonderful little spider."